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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/486,225	05/22/2000	YITZHAK BIRK	P-1311-US	3527

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EXAMINER	
RAMAN, USHA	
ART UNIT	**PAPER NUMBER**
2617	

DATE MAILED: 09/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/486,225	BIRK ET AL.	
	Examiner	Art Unit	
	Usha Raman	2617	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 August 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2,4 and 7-18* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,4 and 7-18* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Response to Arguments

1. Applicant's arguments filed August 9th, 2005 have been fully considered but they are not persuasive.

Applicant argues that "Koller's antenna is not a multi-polarization antenna; it is two antennas with mutually orthogonal polarizations packed together". The examiner respectfully disagrees with the applicant's assertion. Applicant specification discloses on page 12, lines 3-4, "For a multi-polarization antenna, multiple signals are transmitted, each with different polarization directions" and further disclosing on page 12, lines 13-15 that, "multi-polarization antenna can be any antenna with poor cross polarization". In this case, Koller discloses that the antenna can transmit multiple signals, each with different polarization direction (see column 1, lines 68-72), and further accomplishes poor cross polarization of the multiple signals since one winding transmits using RHCP and another winding transmits using LHCP.

Applicant further asserts that "if both antennas in Koller are fed with the same signal, with same or different amplitudes and phases, the resulting transmission would have the same polarization in all directions". However, upon close examination of Koller, examiner finds nothing in Koller that suggest this.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1, 4, and 7-9, are rejected under 35 U.S.C. 103(a) as being unpatentable over Yiu (US Pat. 6,008,777) in view of Ling et al. (US Pat. 6,172,970) and further in view of Koller (US Pat. 3,569,977).

In regards to claim 1, Yiu discloses a system that provides a wireless connectivity between a personal computer and a television set that are located in different rooms of a house. The system provides output of a computer to a television set via a wireless channel within a building. Note the abstract, and column 1, lines 49-63. The video signal generated by a PC (207) is transmitted to the local PC interface unit (201), which converts the video signals from a standard computer video format to a format suitable for display on an ordinary TV, such as NTSC format. Note column 4, lines 24-36. As is well known in the art, that composite video signal is the waveform that conveys an image in a NTSC signal. The local PC interface unit also comprises circuitry to up-shift the converted video and audio signals to a radio frequency for wireless transmission to a TV interface unit. A transceiver circuitry (243) of the local PC interface transmits the up-converted RF signal to the TV interface unit through a wireless link. Note column 4, lines 46-55.

While Yiu has a receiver unit, it lacks having at least one set of two, differently polarized reception antennas for receiving the transmitted signal

and a reception processor connected between the reception antenna unit and the television set for processing and combining the output of the two transmission systems.

Ling shows an antenna receiver to improve the reception quality of communications in a wireless environment. The antenna receiver comprises first and second antenna diversity branches, for receiving differently polarized signals, then combining and processing means for combining the received signals from the diversity branches and then adapting the processing means (through a controlling means) in accordance with the quality of the output. The processing means measures the received signals and if the signal quality is below a pre-determined threshold value, controls the variable attenuators and the phase shifter in order to search for a better signal reception. Note figure 1 and descriptions in column 2, lines 66-67, column 3, lines 1-15, lines 44-62, column 4, lines 26-54, lines 61-67, and column 5, lines 1-5.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the receiver antenna of Yiu, with a receiver antenna comprising two diversity branches and processing means as taught by Ling in order to improve the reception quality.

The modification of Yiu in view of Ling still lacks a multi-polarization transmission antenna. Koller discloses that the use of a multi-polarization antenna for transmitting signals in different polarization directions. See column 1, lines 68-72. It would have been obvious to one of ordinary skill

in the art at the time of the invention to further modify the system by using a multi-polarization transmission antenna in order to transmit signals in multiple polarization directions thereby increasing the reception quality of the signals being received by the multi-diversity receiver.

In regards to claim 4, the modified system comprises a multi-diversity receiver comprising two antennas, such that they meet the spatial or polarization diversity requirements (un-correlated in a multi-path environment), i.e. the antennas have to be orthogonal. Note Ling: column 4, lines 34-40. Such an antenna is a multi-polarization antenna.

In regards to claim 7, the reception processor of the above-modified system comprises an antenna-processing unit per set of reception antennas. The received signals are processed by the RF attenuator and phase shifter and then combined. The combined signal is then down-converted at the front end RF circuit, whose output is sent to a demodulator and a base-band processing unit, which in turn controls the relative attenuation and relative phase shift based on quality of the signal. The multi-diversity base-band processor of Ling therefore has both quality feedback unit and the controller since it measures the output signal quality and controls the relative attenuation and phase shift accordingly and the front end RF circuit has the down-converter. Note figure 1 and descriptions in column 4, lines 40-49, and line 67 - column 5, line 5 of Ling.

In regards to claim 8, the modified system comprises an antenna processing units with two antenna processing subunits (see Ling: fig. 1, Ant1 and Ant2), and a combiner (see Ling: fig. 1) for combining the output of the antenna processing subunits (see Ling: column 3, lines 56-59, column 4, lines 40-49).

In regards to claim 9, the modified system comprises an antenna processing unit with two antenna processing subunits (see Ling: fig. 1, antenna diversity branches ANT1 and ANT2) and a selector for selecting one of the outputs of one of the outputs of said antenna processing subunits (see Ling: column 6, lines 56-67 and column 7, 1-5).

4. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yiu (US Pat. 6,008,777) in view of Ling et al. (US Pat. 6,172,970) and Koller (US Pat. 3,569,977) as applied to claim 1 above, and further in view of Hudson (US Pat. 5,818,517).

In regards to claim 2, the modified system of Yiu in view of Ling and Koller measures the quality of the signal and adapts the processing when the quality is below a predetermined threshold. However, the system lacks measuring the quality during non-image periods.

Hudson teaches that in order to detect or measure quality (signal to noise ratio) of a TV signal, there are times within the format at which the known waveforms are transmitted, and any deviations from them are known to be indicative of the quality of the signal. Hudson suggests that the most convenient portion to measure the signal to noise ratio in is in the

VBI (i.e. a non-image period) of the NTSC signal. Note column 5, lines 60-67 and column 6, lines 1-12.

Therefore it would have been obvious to one of ordinary skill to further modify the system of Yiu in view of Ling with teachings of Hudson by measuring the deviation in a quality of the video signal during the vertical blanking interval. The motivation would be to measure the signal quality in a period or interval, where it would be the most convenient to detect the deviation, as suggested by Hudson.

5. Claims 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yiu (US Pat. 6,008,777) in view of Ling et al. (US Pat. 6,172,970) and Koller (US Pat. 3,569,977) as applied to claims 7 above, and further in view of Bergins (US Pre Grant Pub. 20030186706) et al.

In regards to claim 12, the modified system of Yiu in view of Ling and Koller does not have input units in the quality feedback unit for receiving quality definition from a user.

Bergins teaches that a predefined threshold value to compare the RF signal strength with can be predefined or entered by the user, allowing user to enter the quality definition. Note paragraph 44 in page 3 of Bergins.

Therefore it would have been obvious to one of ordinary skill to modify the system of Yiu in view of Ling with teachings of Bergins by allowing user to define the threshold value, in order to allow user to set his/her own quality criteria for receiving the signals.

6. Claims 13, and 15-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yiu (US Pat. 6,008,777) in view of Ling et al. (US Pat. 6,172,970).

In regards to claim 13, Yiu discloses a system that provides a wireless connectivity between a personal computer and a television set that are located in different rooms of a house. The system provides output of a computer to a television set via a wireless channel within a building. Note the abstract, and column 1, lines 49-63. The video signal generated by a PC (207) is transmitted to the local PC interface unit (201), which converts the video signals from a standard computer video format to a format suitable for display on an ordinary TV, such as NTSC format. Note column 4, lines 24-36. As is well known in the art, that composite video signal is the waveform that conveys an image in a NTSC signal. The local PC interface unit also comprises circuitry to up-shift the converted video and audio signals to a radio frequency for wireless transmission to a TV interface unit. A transceiver circuitry (243) of the local PC interface transmits the up-converted RF signal to the TV interface unit through a wireless link. Note column 4, lines 46-55.

In regards to claim 15, the reception processor of the above-modified system comprises an antenna-processing unit per set of reception antennas. The received signals are processed by the RF attenuator and phase shifter and then combined. The combined signal is then down-converted at the front end RF circuit, whose output is sent to a

demodulator and a base-band processing unit, which in turn controls the relative attenuation and relative phase shift based on quality of the signal. The multi-diversity base-band processor of Ling therefore has both quality feedback unit and the controller since it measures the output signal quality and controls the relative attenuation and phase shift accordingly and the front end RF circuit has the down-converter. Note figure 1 and descriptions in column 4, lines 40-49, and line 67 - column 5, line 5 of Ling.

In regards to claim 16, the modified system comprises an antenna processing units with two antenna processing subunits (see Ling: fig. 1, Ant1 and Ant2), and a combiner (see Ling: fig. 1) for combining the output of the antenna processing subunits (see Ling: column 3, lines 56-59, column 4, lines 40-49).

In regards to claim 17, the modified system comprises an antenna processing unit with two antenna processing subunits (see Ling: fig. 1, antenna diversity branches ANT1 and ANT2) and a selector for selecting one of the outputs of one of the outputs of said antenna processing subunits (see Ling: column 6, lines 56-67 and column 7, 1-5).

While Yiu has a receiver unit, it lacks having at least one set of two, differently polarized reception antennas for receiving the transmitted signal and a reception processor connected between the reception antenna unit and the television set for processing and combining the output of the two transmission systems.

Ling shows an antenna receiver to improve the reception quality of communications in a wireless environment. The antenna receiver comprises first and second antenna diversity branches, for receiving differently polarized signals, then combining and processing means for combining the received signals from the diversity branches and then adapting the processing means (through a controlling means) in accordance with the quality of the output. The processing means measures the received signals and if the signal quality is below a pre-determined threshold value, controls the variable attenuators and the phase shifter in order to search for a better signal reception. Note figure 1 and descriptions in column 2, lines 66-67, column 3, lines 1-15, lines 44-62, column 4, lines 26-54, lines 61-67, and column 5, lines 1-5.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the receiver antenna of Yiu, with a receiver antenna comprising two diversity branches and processing means as taught by Ling in order to improve the reception quality.

7. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yiu (US Pat. 6,008,777) in view of Ling et al. (US Pat. 6,172,970) as applied to claim 13 above, and further in view of Hudson (US Pat. 5,818,517).

In regards to claim 14, the modified system of Yiu in view of Ling measures the quality of the signal and adapts the processing when the

quality is below a predetermined threshold. However, the system lacks measuring the quality during non-image periods.

Hudson teaches that in order to detect or measure quality (signal to noise ratio) of a TV signal, there are times within the format at which the known waveforms are transmitted, and any deviations from them are known to be indicative of the quality of the signal. Hudson suggests that the most convenient portion to measure the signal to noise ratio in is in the VBI (i.e. a non-image period) of the NTSC signal. Note column 5, lines 60-67 and column 6, lines 1-12.

Therefore it would have been obvious to one of ordinary skill to further modify the system of Yiu in view of Ling with teachings of Hudson by measuring the deviation in a quality of the video signal during the vertical blanking interval. The motivation would be to measure the signal quality in a period or interval, where it would be the most convenient to detect the deviation, as suggested by Hudson.

8. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yiu (US Pat. 6,008,777) in view of Ling et al. (US Pat. 6,172,970) as applied to claim 15 above, and further in view of Bergins (US Pre Grant Pub. 20030186706) et al.

In regards to claim 18, the modified system of Yiu in view of Ling does not have input units in the quality feedback unit for receiving quality definition from a user.

Bergins teaches that a predefined threshold value to compare the RF signal strength with can be predefined or entered by the user, allowing user to enter the quality definition. Note paragraph 44 in page 3 of Bergins.

Therefore it would have been obvious to one of ordinary skill to modify the system of Yiu in view of Ling with teachings of Bergins by allowing user to define the threshold value, in order to allow user to set his/her own quality criteria for receiving the signals.

Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Usha Raman whose telephone number is (571) 272-7380. The examiner can normally be reached on Mon-Fri: 9am-6pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christopher Kelley can be reached on (571) 272-7331. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

UR

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